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**(54) ELEMENT FOR PRODUCING OPTICAL SYSTEM
WITH LASER**

(57) Abstract:

PURPOSE: To ensure a stable refractive index and stable transmissivity to high output laser light in a short wavelength region over a long time and to reduce fluorescence by making the structure of high purity quartz glass practically free from oxygen defects.

CONSTITUTION: High purity quartz glass

having ≈ 300 ppm OH group content, ≤ 0.1 ppm alkali metal content, ≤ 0.1 ppm alkaline earth metal content, ≤ 0.01 ppm transition metal content and ≤ 0.1 ppm Al content is formed by a soot process or a plasma process with gaseous SiCl_4 , oxygen and hydrogen. The quartz glass is heat treated in an oxidizing and/or reducing atmosphere to make the structure of the glass practically free from oxygen defects.

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